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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/598,896	06/22/2000	Jose Luis Gonzalez De Prado	Q59609	8570

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EXAMINER

MEW, KEVIN D

ART UNIT PAPER NUMBER

2616

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/598,896

Applicant(s)

GONZALEZ DE PRADO, JOSE
LUIS

Examiner

Kevin Mew

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 18-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 18-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Final Action

Response to Amendment

1. Applicant's Remarks/Arguments filed on 6/5/2006 regarding claims 1-14 have been fully considered and claims 1-14, 18-23 are currently pending. Claims 15-17 have been canceled by applicant.

Claim Objections

2. Claims 1, 4-6 are objected to because of the following informalities:

Claim 1, which is a method claim, is narrative in form and replete with functional or operational language. Note the format of the claims in the patent(s) cited.

Claim 1 is narrative in form and replete with functional language because it lacks a transitional phrase such as "comprising the steps of" in line 2 of the claim. Applicant should also avoid using the phrase "means of" in a method claim.

It is suggested by examiner that claim 1 can be amended as follows:

"A method for multiple access in a radio communication system that employs time division multiple access techniques, comprising the steps of:

interchanging a signaling messages, using a signaling multiframe, between at least one fixed unit and a set of remote units located with the coverage area associated with said fixed unit, ... the signaling multiframe comprising a predetermined number ... of the remote units and generated by a controller included in the fixed unit;

increasing or/and decreasing, by said controller, the predetermined number of virtual identities for signaling based on the level of occupancy of the signaling multiframe; and

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using a virtual identity in a signaling multiframe by a remote unit when sending a message and releasing the virtual identity after the message transmission is complete.”

Likewise, to avoid using the phrase “mean,” claims 4-6 can be amended as follows:

In claim 4, “The method for multiple access according to claim 3, wherein the pilot channel is received by a radio receiver included in a remote unit and is fed to said controller included in the remote unit for recording the predetermined number of virtual identities for signaling.”

In claim 5, “The method for multiple access according to claim 4, wherein a virtual identity is selected by said controller ...”

In claim 6, “The method for multiple access according to claim 5, wherein the signaling multiframe is received in the radio receiver of said fixed unit by said controller of said fixed unit in order that ...”

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 7-10, 14, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng (US Patent 5,563,883) in view of Barzegar et al. (US Publication 2001/0028644 A1).

Regarding claims 1, 8, Cheng discloses a method and an apparatus in which a multiple access radio communication system (**multiple access in a radio communication system**, see col. 5, line 8 and Figure 1, element 18) can be adopted for a TDMA scheme (**fixed unit and remote units employ time division multiple access techniques**, see col. 6, lines 57-60) to provide dynamic signaling channel allocation (see col. 6, lines 54-57). Cheng discloses that the system comprises a central controller that interchanges signaling messages with a plurality of remote terminals (**interchanging signaling messages between at least one fixed unit and a set of remote units**, see col. 5, lines 2-3, and Figure 2). Cheng further discloses a pool of signaling channels (**signaling multiframe, predetermined number of virtual identities for signaling**), provided by the central controller (**a first controller means**, see col. 7, lines 36-38 and Figure 2), are used to support signaling between the central controller and remote terminals in both the forward and reverse directions (**signaling multiframe is formed by a predetermined number of virtual identities for signaling which are generated by a first controller means, signaling multiframe is used in both transmission directions**, see col. 5, lines 12-21). The central controller (**the first controller means**) dynamically adjusts (**increases or/and decreases**) the

number of signaling channels (**the predetermined number of virtual identities for signaling which are independent of the true identities of the remote units**, see col. 5, lines 58-67 and col. 6, lines 1-14 and Fig. 2; note that the forward direction signaling channels FD-1, FD-2 to FD-a and reverse direction signaling channels RD-1, RD-2 to RD-n are interpreted as signaling channel identifiers for signaling which identify the signaling channels being established between the central station and the remote units, and are independent of the true identities of the remote units or the remote terminal serial number) to meet the requirements of varying traffic demand (**based on the level occupancy of the signaling multiframe**) and the system growth (**the first controller means increases or/and decreases the predetermined number of virtual identities for signaling based on the level of occupancy of the signaling multiframe**, see col. 2, lines 44-46, col. 3, lines 36-37 and lines 45-47). It is interpreted that the action of the central controller dynamically adjusting the number of signaling channels is equivalent to the action of increasing or/and decreasing the number of virtual identities for signaling because the term “adjusting” means either increasing or decreasing. Furthermore, the term “varying traffic demand” is interpreted as the equivalence of “the level of occupancy of the signaling multiframe” because higher traffic demand requires more signaling channels, which means higher level of occupancy of the signaling multiframe.

Cheng does not explicitly show that a remote unit only uses a virtual identity in the signaling multiframe when sending a message and releases the virtual identity after the message transmission is complete.

However, Barzegar discloses a TDM communication device IDS (see paragraph 0059 and element 22, Fig. 1, and Fig. 2) with a RF audio/video interface (see element 120, Fig. 2) that

generates and allocates signaling data and channels (virtual identities) at one of the stations when connecting a telecommunication call session and deallocates the signaling data and channel in response to a termination of the user data (see paragraph 0012).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to combine the radio communication system of Cheng with the teaching of dynamic signaling channel allocation in Berzegar such that a signaling channel is allocated when performing a telecommunication call session and is deallocated in response to the termination of user data. The motivation to do so is to reserve bandwidth resources by dynamically allocating and deallocating signaling channels instead of providing dedicated signaling resource for each telecommunication call session.

Regarding claims 2, 9, Cheng discloses that the number of signaling channels is less than the number of the remote terminals (**the number of virtual identities is less than the number of remote units**, see col. 6, lines 26-28).

Regarding claims 3, 10, Cheng discloses a signaling frame (see Figure 9) comprising a signaling action type field in which a signaling channel number is transmitted. There is no indication that the creation of this signaling channel (virtual identity) is based on remote terminal identity (identity of remote unit). Therefore, the signaling channel identity bears no association with the remote terminal identity (see Figure 9). Cheng further discloses that the central controller, comprising a pool of transmitters (see line 5, abstract), transmits signaling channels to a group of remote units in a downlink direction (**virtual identities are broadcast by a first**

radio transmitter included in the fixed unit over a pilot channel in the downlink transmission direction, see col. 7, lines 36-38 and Figure 2).

Regarding claim 7, Cheng discloses signaling channels (**signaling multiframe**) availability is determined by the bandwidth of the signaling channel (**the signaling multiframe is formed by a maximum number of virtual identities for signaling that is a function of maximum duration permissible for said signaling multiframe, see col. 8, lines 35-39).**

Regarding claim 14, Cheng further discloses a pool of signaling channels (**signaling multiframe, predetermined number of virtual identities for signaling**), provided by the central controller (**a first controller means, see col. 7, lines 36-38 and Figure 2**), are used to support signaling between the central controller and remote terminals in both the forward and reverse directions (**first controller means is adapted for generating a number of virtual identities for signaling, see col. 5, lines 12-21**). The central controller (**the first controller means**) dynamically adjusts the number of signaling channels (**increases or/and decreases the predetermined number of virtual identities for signaling**) to meet the requirements of varying traffic demand (**as a function of the level of occupancy of the signaling multiframe**) and the system growth (see col. 2, lines 44-46, col. 3, lines 36-37 and lines 45-47). Cheng further discloses signaling channels (**signaling multiframe**) availability is determined by the bandwidth of the signaling channel (**a maximum number of virtual identities for signaling which is a function of the maximum duration permissible for said signaling multiframe, see col. 8, lines 35-39).**

Regarding claim 18, Cheng further discloses a method according to claim 1, wherein each virtual identity (signaling channel) when in use is for sending signaling information with respect to a single one of said remote units (FD-1 is the signaling data channel used for remote terminal numbered 1 and FD-a is the signaling data channel used for remote terminal numbered a, col. 5, lines 63-67 and Fig. 2).

Regarding claim 19, Cheng further discloses a system according to claim 1, wherein each virtual identity (signaling channel) when in use is for sending signaling information with respect to a single one of said remote units (FD-1 is the signaling data channel used for remote terminal numbered 1 and FD-a is the signaling data channel used for remote terminal numbered a, col. 5, lines 63-67 and Fig. 2).

Regarding claim 20, Cheng further discloses a method according to claim 1, wherein a given remote unit may use different ones of said virtual identities (signaling channels) for successive transmissions of signaling information (a remote terminal may use a different signaling channel for transmitting signaling information, col. 14, lines 50-53).

Regarding claim 21, Cheng further discloses a system according to claim 1, wherein a given remote unit may use different ones of said virtual identities (signaling channels) for successive transmissions of signaling information (a remote terminal may use a different signaling channel for transmitting signaling information, col. 14, lines 50-53).

4. Claims 4-6, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Barzegar, and in further view of Grauel et al (US 4,573,206).

Regarding claims 4, 11, the combined system of Cheng and Barzegar discloses all the aspects of the claimed invention as set forth in the rejection of claims 3, 10, 8, respectively, above, except fail to explicitly show that a remote terminal records the predetermined number of virtual identities.

However, Grauel discloses a radio transmission system (see col. 2, line 66) in which a mobile radio station, comprising a receiver (see Figure 1), would run a search for the control (signaling) channel with the best signal-to-noise ratio (**choosing a virtual identities for signaling of the received inside the pilot channel**, see col. 3, lines 39-42) and stores the channel number of this channel. This would indicate that the remote terminal comprises a control means to store the available signaling channels in a memory means (**a remote unit being fed to a second controller means for recording the predetermined number of virtual identities for signaling**). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the remote terminal of Cheng such that the remote terminal would record the predetermined number of virtual identities for signaling such as the mobile radio station taught by Grauel. Having the remote terminal store the predetermined number of signaling channels in memory can modify the mobile terminal of Cheng. The motivation to do so is to record each available signaling channel number because it would allow remote terminal to select a particular signaling channel to use from the pool of available signaling channels.

Regarding claims 5, 12, the combined system of Cheng and Barzegar disclose all the aspects of the claimed invention set forth in the rejection of claim 4, 11, respectively, above. Cheng further discloses each of said plurality of remote terminals comprising signaling data transmitting means for transmitting signaling data on an unassigned communication channel **(insert the signaling message inside the virtual identity selected, so as to be transmitted by a second radio transmitter, see col. 18, lines 17-18 and 24-25)** and a central controller comprises a receiving means for receiving user traffic or signaling data on said communications channel **(a first radio receiver included in the fixed unit receives the signaling message, see col. 17, lines 6-7 and lines 14-15).**

Regarding claims 6, 13, the combined system of Cheng and Barzegar disclose all the aspects of the claimed invention set forth in the rejection of claim 5, 12, respectively, except fail to explicitly show that signaling channel number would be marked as occupied in the fixed unit controller, and broadcasted by the fixed unit. However, Grauel discloses a mobile station would do a search for a control channel (signaling frame) when it is ready to transmit in a radio zone. When a control channel is selected, the mobile station would store channel number of the control channel. It is inherent that once a mobile station selects a channel number, the central controller of the base station, comprising a pool of receivers (see line 5, abstract), would be notified by the mobile station that particular signaling channel is being occupied **(the first radio receiver adapted for supplying the first controller means with the signaling multiframe),** and broadcast this information via a transmission channel to all mobile units so that other mobile

stations can skip this signaling channel while searching for an available signaling channel (**the selected virtual identity marked as occupied**). Cheng further discloses that the central controller, comprising a pool of transmitters (see line 5, abstract), transmits signaling channels to a group of remote units in a downlink direction (**broadcast over the pilot channel**, see col. 7, lines 36-38 and Figure 2). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the fixed unit controller of Cheng such that the fixed unit would mark the signaling channel as occupied such as the base station taught by Grauel. Having the fixed unit controller monitor signaling channel status and broadcast this status information to all remote units can modify the fixed unit of Cheng. The motivation to do so is to mark the signaling channel as used because it would reduce the time it takes to search for an available signaling channel.

5. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Barzegar, and in further view of Lee et al (USP 6,931,026).

Regarding claim 22, the combined system of Cheng and Barzegar discloses all the aspects of the claimed invention set forth in the rejection of claim 1 above, except fails to disclose a method according to claim 1, wherein until release of a virtual identity by a particular remote unit the virtual identity cannot be used to send signaling information for any other remote unit.

However, Lee discloses a mobile communication system is provided between a base station and a mobile station, wherein a dedicated signaling channel is assigned as a logical

channel for the mobile station and is released when the mobile station is in suspended state (col. 2, lines 56-65, col. 3, lines 33-37).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the fixed unit controller of Cheng with the teaching of Lee in providing a dedicated signaling channel is assigned as a logical channel for the mobile station and is released when the mobile station is in suspended state such that until release of a virtual identity/signaling channel by a particular remote unit the virtual identity/signaling channel cannot be used to send signaling information for any other remote unit.

The motivation to do so is to allow the base station to use the dedicated signaling channel to negotiate about a service specification with the mobile station.

Regarding claim 23, the combined system of Cheng and Barzegar discloses a system according to claim 1, wherein until release of a virtual identity by a particular remote unit the virtual identity cannot be used to send signaling information for any other remote unit.

However, Lee discloses a mobile communication system is provided between a base station and a mobile station, wherein a dedicated signaling channel is assigned as a logical channel for the mobile station and is released when the mobile station is in suspended state (col. 2, lines 56-65, col. 3, lines 33-37).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the fixed unit controller of Cheng with the teaching of Lee in providing a dedicated signaling channel is assigned as a logical channel for the mobile station and is released when the mobile station is in suspended state such that until release of a virtual

identity/signaling channel by a particular remote unit the virtual identity/signaling channel cannot be used to send signaling information for any other remote unit.

The motivation to do so is to allow the base station to use the dedicated signaling channel to negotiate about a service specification with the mobile station.

Response to Arguments

6. Applicant's Remarks/Arguments filed on 6/5/2006 have been fully considered but they are not persuasive.

Applicant argued on page 2, third paragraph, page 3, first paragraph, and page 4, second paragraph of the Remarks that each of Cheng and Barzegar discloses only signaling channels, but not virtual identities as described in claim 1, the examiner respectfully disagrees. Although the applicant allegedly argued that signaling channels are not virtual identities, it is noted that neither the specification nor the claimed language offers a clear definition of what virtual identity really is. In the event that a virtual identity is what applicant suggested it to be, that is, a "virtual identity might be, e.g., user-1 out of N users who are permitted to use the signaling channel" as described on page 3, third paragraph of the Remarks, this implied meaning/concept of virtual identity is also disclosed by Cheng (terminal ID, TID as shown the signaling data frame, Fig. 9).

Applicant further argued on page 4, third paragraph of the Remarks that "once a signaling channel is assigned to a remote terminal in Cheng, the signaling channel remains assigned to the terminal," the examiner respectfully disagrees. Cheng discloses that a remote terminal will be reassigned from a predetermined signaling channel to another signaling channel based on the traffic load requirements of the signaling channel (col. 14, lines 27-53, col. 15, lines 13-20).

In light of the foregoing, claims 1-3, 7-10, 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng (US Patent 5,563,883) in view of Barzegar et al. (US Publication 2001/0028644 A1), and claims 4-6, 11-13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Barzegar, and in further view of Grauel et al (US 4,573,206).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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